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10/28/2003

Sang Ho Lee

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EXAMINER

AHMED, SALMAN

ART UNIT

PAPER NUMBER

2619

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03/10/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/693,916	Applicant(s) LEE, SANG HO	
	Examiner SALMAN AHMED	Art Unit 2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1/29/2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 14, 15 and 26-31 is/are rejected.
- 7) ☒ Claim(s) 4-13 and 16-25 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/28/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1-31 are pending.

Claims 1-3, 14, 15 and 26-31 are rejected.

Claims 4-13 and 16-25 are objected to.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 27 and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 27 states, the data RLP module is configured to perform at least one of fragmentation of a packet data frame in an upper layer and assembly of a packet data frame in the upper layer into the RLP frame. It is unclear as to data RLP module is performing the fragmentation or assembly; or upper layer is performing the fragmentation or assembly into RLP frame. As such, claim 27 is indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 28 states, the voice RLP module is configured to perform at least one of fragmentation of a voice frame in an upper layer and assembly of the voice frame in the upper layer into the RLP frame. It is unclear as to voice RLP module is performing the fragmentation or assembly; or upper layer is performing the fragmentation or assembly

into RLP frame. As such, claim 28 is indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seo (US PAT 6452911) in view of Grob et al. (US PAT PUB 2003/0174707, hereinafter Grob).

In regards to claim 1, Seo teaches a method for providing simultaneous voice and data (SVD) service in a mobile communication system, comprising: performing SVD call processing that supports SVD service between mobile terminals and base stations by using a SVD service option; and providing SVD service by transmitting and receiving voice and packet data after service negotiation is performed using the SVD service option (column 3 lines 40-59, to request for a simultaneous transfer of voice and data, a user inputs from a mobile station 100 a call number of the destination and presses a "send" key. Upon pressing the "send" key, the mobile station 100 transmits the origination message to the base station 200 through an access channel. The Base Station 200 receives the transmitted message and after examining the message, informs the CCP of the BSC 300 that a message has been generated and the

origination of the call. The TCE4 of the base station 200 also transmits a signal "ACK" through a paging channel to the mobile station 100 acknowledging the receipt of the message. Before connecting and transmitting the call, the CCP of the BSC 300 verifies the states of its own system and the MSC 400. If the BSC 300 and MSC 400 are not in overload states, the CCP connects the call by allocating a frame offset and the vocoder resources, according to the service option of the call origination. The service option may include sending voice frames, data frames, or both voice and data frames).

Seo does not explicitly teach transferring voice and packet data simultaneously using a radio link protocol (RLP) frame.

Grob in the same field of endeavor teaches transferring voice and packet data simultaneously using a radio link protocol (RLP) frame (Figure 5 and paragraph 0023, TCP packets 506 may be generated from a much larger data file. The data file may be partitioned into several TCP packets 506. The data file may include text message data, video data, picture data or voice data. At the Internet Protocol layer (IP) layer 502, a header is added to the TCP packets 506 to produce data packet 507. At a point-to-point protocol (PPP) layer 503, PPP header and trailer data are added to data packet 507 to produce data packet 508. At RLP layer 504, the data packet 508 is divided into several RLP packets 509A-N).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Seo's system/method by incorporating the steps of transferring voice and packet data simultaneously using a radio link protocol (RLP) frame as suggested by Grob. The motivation is that by packing voice and data packets

in a RLP frame, instead of separate RLP frames, bandwidth efficient data and voice services can be achieved in a mobile communication system.

In regards to claim 14, Seo teaches a method for providing simultaneous voice and data (SVD) service in a mobile communication system, comprising: performing SVD call processing that supports SVD service through SVD request signaling message exchange, when SVD service is requested after packet data call setup between a mobile terminal and a base station is completed; and providing SVD service by transmitting and receiving voice and packet data simultaneously after service negotiation is performed through the SVD request signaling message exchange (column 3 lines 40-59, to request for a simultaneous transfer of voice and data, a user inputs from a mobile station 100 a call number of the destination and presses a "send" key. Upon pressing the "send" key, the mobile station 100 transmits the origination message to the base station 200 through an access channel. The Base Station 200 receives the transmitted message and after examining the message, informs the CCP of the BSC 300 that a message has been generated and the origination of the call. The TCE4 of the base station 200 also transmits a signal "ACK" through a paging channel to the mobile station 100 acknowledging the receipt of the message. Before connecting and transmitting the call, the CCP of the BSC 300 verifies the states of its own system and the MSC 400. If the BSC 300 and MSC 400 are not in overload states, the CCP connects the call by allocating a frame offset and the vocoder resources, according to the service option of the call origination. The service option may include sending voice frames, data frames, or both voice and data frames).

Seo does not explicitly teach transferring voice and packet data simultaneously using a radio link protocol (RLP) frame.

Grob in the same field of endeavor teaches transferring voice and packet data simultaneously using a radio link protocol (RLP) frame (Figure 5 and paragraph 0023, TCP packets 506 may be generated from a much larger data file. The data file may be partitioned into several TCP packets 506. The data file may include text message data, video data, picture data or voice data. At the Internet Protocol layer (IP) layer 502, a header is added to the TCP packets 506 to produce data packet 507. At a point-to-point protocol (PPP) layer 503, PPP header and trailer data are added to data packet 507 to produce data packet 508. At RLP layer 504, the data packet 508 is divided into several RLP packets 509A-N).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Seo's system/method by incorporating the steps of transferring voice and packet data simultaneously using a radio link protocol (RLP) frame as suggested by Grob. The motivation is that by packing voice and data packets in a RLP frame, instead of separate RLP frames, bandwidth efficient data and voice services can be achieved in a mobile communication system.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Seo and Grob as applied to claim 1 above and further in view of Park et al. (US PAT PUB 2002/0036993, hereinafter Park).

In regards to claim 2, Seo and Grob teach using RLP for communication.

Seo and Grob do not explicitly teach designating and using a service reference ID for a new SVD service option, which is different from a pre-designated voice service option or packet data service option.

Park in the same field of endeavor teaches designating and using a service reference ID for a new SVD service option, which is different from a pre-designated voice service option or packet data service option (Section 0035, The Length Indicator field 630 and the Length field 650 are added to the SR_ID field 610 and the Reserved field 620, which are contained in the conventional header).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Seo and Grob's system/method by incorporating the steps of using designating and using a service reference ID for a new SVD service option, which is different from a pre-designated voice service option or packet data service option as suggested by Park. The motivation is that (as suggested by Park, section 0009) in a conventional radio transmitting/receiving system employing the frame structure of FIG. 3, when even a part of header portions 310 and 320 is damaged, it is impossible for a recipient to know the exact length of the DATA field, and consequently, RLP decoding is not possible; thus implementing new structure makes the network reliable.

6. Claims 26-28, 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gage et al. (US PAT 6515972, hereinafter Gage) in view of Grob and Wei et al. (US PAT PUB 2005/0163161, hereinafter Wei).

In regards to claim 26, Gage teaches a mobile communication apparatus

(System in Figure 2) having a service interface comprising: a voice radio link protocol (RLP) module (Figure 2, a voice RLP 15); and a data RLP module (Figure 2, a packet data RLP 16), wherein the apparatus is configured to transmit voice and packet data by using RLP frames based on output of voice RLP module and data RLP module (column 7 lines 23-24 and 30-31, all voice information sent on connection 12 is delivered using RLPs 15 and 25. All information transmitted over the RAN connection 13 is delivered to MS connection 23 using the data RLPs 16 and 26).

Gage does not explicitly teach transferring voice and packet data simultaneously together in a radio link protocol (RLP) frame.

Grob in the same field of endeavor teaches transferring voice and packet data simultaneously using a radio link protocol (RLP) frame (Figure 5 and paragraph 0023, TCP packets 506 may be generated from a much larger data file. The data file may be partitioned into several TCP packets 506. The data file may include text message data, video data, picture data or voice data. At the Internet Protocol layer (IP) layer 502, a header is added to the TCP packets 506 to produce data packet 507. At a point-to-point protocol (PPP) layer 503, PPP header and trailer data are added to data packet 507 to produce data packet 508. At RLP layer 504, the data packet 508 is divided into several RLP packets 509A-N).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Gage's system/method by incorporating the steps of transferring voice and packet data simultaneously together in a radio link protocol (RLP) frame as suggested by Grob. The motivation is that by packing voice and data packets

in a RLP frame, instead of separate RLP frames, bandwidth efficient data and voice services can be achieved in a mobile communication system.

Gage teaches in Figure 1 showing Link Protocol being in OSI model Layer-2 but Gage and Grob do not explicitly teach RLP in MAC sub-layer.

Wei in the same field of endeavor teaches the MAC sublayer comprises a Radio Link Protocol (RLP) 232 (Figure 2 and section 0036).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Gage and Grob's system/method by incorporating the steps of RLP being in MAC sub-layer as suggested by Wei. The motivation is that, (as suggested by Wei, section 0036) the structure of the MAC sublayer and the entities that comprise the MAC sublayer are described in detail in document TIA/EIA/IS-2000.3-C, entitled "Medium Access Control (MAC) Standard for cdma2000 Spread Spectrum Systems," Release C; thus it is advantageous to adapt to known standards for implementation of MAC/RLP based communication for following reason: Companies actively involved in adhering to standards more frequently reap short- and long-term cost-savings and competitive benefits than those that do not. Standardization can lead to lower transaction costs in the economy as a whole, as well as to savings for individual businesses. Standards have a positive effect on the buying power of companies. Standards can help businesses avoid dependence on a single supplier because the availability of standards opens up the market. The result is a broader choice for businesses and increased competition among suppliers. Companies also have increased confidence in the quality and reliability of suppliers who use standards.

In addition, standards are used by businesses to exert market pressure on companies further down the value chain, i.e., their clients. Thus, businesses can use standards to broaden their potential markets.

In regards to claims 27, Gage teaches the data RLP module is configured to perform at least one of fragmentation of a packet data frame in an upper layer or assembly of a packet data frame in the upper layer into the RLP frame (column 7 lines 8-22, a voice connection 12, 22 is created in a similar way through the voice RLPs 15, 25, and a packet data connection 13, 23 is created through the packet data RLPs 16, 26. c. Once the connections have been established, when information is to be sent from the RAN 101 to the MS 102, a higher-level entity (not shown) determines the type of information (Tol) to be sent (signaling, voice, or packet data), and enqueues the information to be transmitted over the appropriate connection 11, 12 or 13, respectively).

In regards to claims 28, Gage teaches the voice RLP module is configured to perform at least one of fragmentation of a voice frame in an upper layer or assembly of the voice frame in the upper layer into the RLP frame (column 7 lines 8-22, a voice connection 12, 22 is created in a similar way through the voice RLPs 15, 25, and a packet data connection 13, 23 is created through the packet data RLPs 16, 26. c. Once the connections have been established, when information is to be sent from the RAN 101 to the MS 102, a higher-level entity (not shown) determines the type of information (Tol) to be sent (signaling, voice, or packet data), and enqueues the information to be transmitted over the appropriate connection 11, 12 or 13, respectively).

In regards to claims 30 and 31, Gage teaches the apparatus being at least one of a mobile terminal and a base station and being a mobile communication system (FIG. 2 illustrates a radio link protocol architecture illustrating a sample current network, showing a radio access network (RAN) 101 and a mobile station (MS) 102).

7. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gage, Grob and Wei as applied to claim 26 above and further in view of Harris.

In regards to claim 29, Gage, Grob and Wei teach transmitting voice frames via RLP as described in the rejections of claim 26 above.

Gage, Grob and Wei do not explicitly teach RLP frames are classified into full rate half rate, quarter rate and eighth rate.

Harris in the same field of endeavor teaches RLP frames are classified into full rate half rate, quarter rate and eighth rate (sections 0002, 0004 and 0032).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Gage, Grob and Wei's system/method by incorporating the steps of RLP frames being classified into full rate half rate, quarter rate and eighth rate as suggested by Harris. The motivation is that, (as suggested by Harris, section 0004) the frame rate is designated generally the lowest rate frame which is large enough to carry the payload; thus making efficient use of the available bandwidth.

8. Claims 3 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seo and Grob as applied to claims 1 and 14 above and further in view of Gage and Wei.

In regards to claims 3 and 15 Seo and Grob teach RLP based communication as described in the rejections of claims 1 and 14 above.

Seo and Grob do not explicitly teach implementing a voice RLP module, which assembles voice frames into RLP frames such that voice and packet data can be transmitted by means of RLP.

Gage in the same field of endeavor teaches a voice radio link protocol (RLP) module (Figure 2, a voice RLP 15); and a data RLP module (Figure 2, a packet data RLP 16), wherein the apparatus is configured to transmit and/or receive voice and packet data together by using RLP frames (column 7 lines 23-24 and 30-31, all voice information sent on connection 12 is delivered using RLPs 15 and 25. All information transmitted over the RAN connection 13 is delivered to MS connection 23 using the data RLPs 16 and 26).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Seo and Grob's system/method by incorporating the steps of a voice RLP module, which assembles voice frames into RLP frames such that voice and packet data can be transmitted by means of RLP as suggested by Gage. The motivation is that (as suggested by Gage, column 6 lines 51-60) for efficient transmission, three different types of radio link protocols (RLPs) are illustrated in FIG. 2, which are a signaling RLP 14, 24, a voice RLP 15, 25 and a packet data RLP 16, 26; thus Signaling RLP 14, 24 is designed to efficiently handle high-priority, packet-based signaling traffic between the RAN and the MS, Voice RLP 15, 25 is designed to efficiently transport voice traffic between the RAN and the MS and Packet data RLP 16,

26 is designed to efficiently transport packet data traffic between the RAN 101 and the MS 102 on a "best effort" basis, enabling a seamless and reliable communication.

Seo, Grob and Gage do not explicitly teach RLP in MAC sub-layer.

Wei in the same field of endeavor teaches the MAC sublayer comprises a Radio Link Protocol (RLP) 232 (Figure 2 and section 0036).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Seo, Grob and Gage's system/method by incorporating the steps of RLP being in MAC sub-layer as suggested by Wei. The motivation is that, (as suggested by Wei, section 0036) the structure of the MAC sublayer and the entities that comprise the MAC sublayer are described in detail in document TIA/EIA/IS-2000.3-C, entitled "Medium Access Control (MAC) Standard for cdma2000 Spread Spectrum Systems," Release C; thus it is advantageous to adapt to known standards for implementation of MAC/RLP based communication for following reason: Companies actively involved in adhering to standards more frequently reap short- and long-term cost-savings and competitive benefits than those that do not. Standardization can lead to lower transaction costs in the economy as a whole, as well as to savings for individual businesses. Standards have a positive effect on the buying power of companies. Standards can help businesses avoid dependence on a single supplier because the availability of standards opens up the market. The result is a broader choice for businesses and increased competition among suppliers. Companies also have increased confidence in the quality and reliability of suppliers who use standards. In addition, standards are used by businesses to exert market pressure on companies

further down the value chain, i.e., their clients. Thus, businesses can use standards to broaden their potential markets.

Allowable Subject Matter

9. Claims 4-13 and 16-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

10. Applicant's arguments see pages 10-13 of the Remarks section, filed 1/29/2008, with respect to the rejections of the claims 1-31 have been fully considered and are not persuasive.

35 USC 112 rejection of claims 27 and 28:

Applicant's arguments see page 10 of the Remarks section, filed 1/29/2008, with respect to the 35 USC 112 rejections of the claims 27 and 28 have been fully considered and are not persuasive.

Applicant argues (see page 10 paragraph 3) that claim 27 recites that the data RLP module is the device which performs fragmentation or assembly of packet data frame, not the upper layer. Applicant adds, see, for example, Paragraph [48] of the specification for support; Applicants therefore submit that claim 27 recites clear and definite subject matter when read in light of the specification relative to these features.

However, Examiner respectfully disagrees with the Applicant's assertion. As mentioned above, amended claim 27 states, the data RLP module is configured to perform at least one of fragmentation of a packet data frame in an upper layer or assembly of a packet data frame in the upper layer into the RLP frame. It is unclear as to data RLP module is performing the fragmentation and assembly or upper layer is performing the fragmentation and assembly into RLP frame. As such, claim 27 is indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Similarly, Claim 28 states, the voice RLP module is configured to perform at least one of fragmentation of a voice frame in an upper layer or assembly of the voice frame in the upper layer into the RLP frame. It is unclear as to voice RLP module is performing the fragmentation and assembly or upper layer is performing the fragmentation and assembly into RLP frame. As such, claim 28 is indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Further, in response to applicant's argument, it is noted that the features upon which applicant relies (i.e., Paragraph [48] of the specification) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

35 USC 103 rejections of claims 1-3, 14, 15 and 26-31:

Applicant has amended independent claims 1, 14 and 26. Applicant's amendment necessitated a new ground of rejection presented in this office action. As

such, any further response to Applicant's argument is moot.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SALMAN AHMED whose telephone number is (571)272-8307. The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edan Orgad can be reached on (571) 272-7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2619

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Salman Ahmed
Examiner
Art Unit 2619

SA
2/28/2008

/Edan Orgad/
Supervisory Patent Examiner, Art Unit 2619